

# Genetic Lifehacks

Learn. Experiment. Optimize.

Hello everyone,

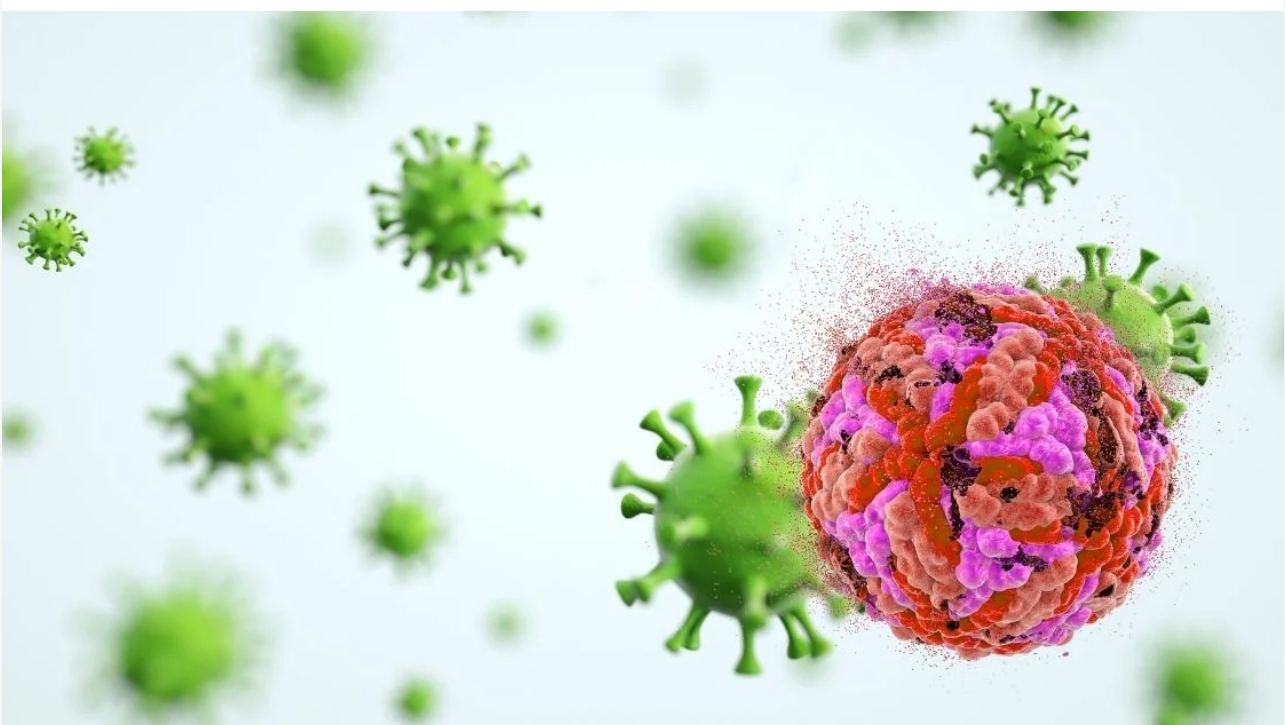
This week's newsletter focus is on the immune response to viruses. Researchers have identified mutations in viral defense genes that increase susceptibility to severe COVID-19 in otherwise healthy adults.

I find it fascinating that genetic variants tell the story of what my ancestors survived. For example, a [cystic fibrosis mutation](#) may have allowed a distant ancestor to survive a cholera epidemic, but today it may increase your susceptibility to respiratory infections. The [CCR5 mutation](#) that protects against AIDS was likely passed along from an ancestor who survived smallpox. The flip side of this mutation, though, is an increased risk of severity in West Nile virus infections. Last example: A [TNF alpha variant](#) increases your risk of many chronic inflammatory conditions, but it likely protected a distant ancestor from malaria or leprosy.

Human history is shaped by interactions with various pathogens. Genetics research allows researchers to trace how different viruses molded our history. If you want to learn more, this [Nature article](#) gives a good overview of the recent discoveries tracing smallpox to the end of the Roman Empire and hepatitis B to the Bronze Age.

Thanks for being a member,

Debbie Moon



# TLR7: Susceptibility to COVID-19

A recent research article in *Science Immunology* explains, at least in part, a question that has puzzled people throughout the pandemic: Why did SARS-CoV-2 result in severe disease for a very small percentage of young, healthy adults? The data was clear from the beginning of the pandemic that the elderly were at high risk, but elderly people have always been very susceptible to respiratory viruses. The question is why the virus is deadly for a small percentage of healthy, younger adults... One answer: TLR7 mutations.[\[ref\]](#)

Just a quick aside - this isn't something that is new with SARS-CoV-2. We all have different genetic variants that impact our responses to different viruses. As a whole, a species survives new pathogens because of the huge diversity in immune responses. Thus, people can be more susceptible to certain pathogens but be resistant to others due to genetic variants. (Read more about [viral susceptibility and genetics](#).)

This article digs into the TLR7 mutations that increase susceptibility to severe COVID-19. I want to be clear up front that this is likely not the only gene with mutations that causes an increased risk of mortality from SARS-CoV-2. Researchers are still working on the whole picture for genetic susceptibility, and other risk factors (age, metabolic health) also are very important.

[Read the article and check your genes...](#)

## [Member's: COVID-19 Research Report](#)

I've put together a [free, downloadable PDF](#) explaining the research studies on vitamins and natural supplements for the prevention or early treatment of SARS-CoV-2. This is a compilation of several long Genetic Lifehacks articles into a quick and readable format.

*Let me be clear:* My intent here is education. I am simply presenting the current clinical trial results and research studies so that you will have a quick overview for your reference. Deliberately, I am not giving any recommendations. Everyone is unique. Read the information, talk with your doctor for healthcare advice, and make informed decisions.

---

### What I've Been Reading...

- 1) [Designer Babies: Parents Doing IVF Are Picking Embryos That Are 'Healthier'](#)

This Bloomberg article explains how some parents are using genetics to choose IVF embryos that may have a decreased chance of chronic disease. The article does a good job of explaining the debate about the ethical risks and theoretical benefits of selecting embryos.

Perhaps I've read too many novels, but to me, the deeming of someone (or a future someone) as healthier based on polygenic risk scores is a really slippery slope! What is to stop a health insurance company or a government from using polygenic risk scores against us? If I am genetically likely to have a sudden heart attack, will decisions be made that I should not receive the same medical care as someone who is likely to live a longer life?

### 2) [Human footprints near ice age lake suggest surprisingly early arrival in the Americas](#)

This *Science* article dives into new research on fossilized human footprints in Colorado. The dating of the footprints adds validity to other research showing that people were living in North America prior to the last ice age.

### 3) [Chantix Recall](#)

Ironically, Pfizer has recalled the smoking cessation drug, Chantix, due to it slightly increasing the risk of lung cancer. "Pfizer is voluntarily recalling all lots of Chantix 0.5 mg and 1 mg Tablets to the patient (consumer/user) level due to the presence of a nitrosamine, N-nitroso-varenicline, at or above the FDA interim acceptable intake limit." Chantix was approved by the FDA in 2006.

---

## **Genetic Lifehacks**

Cameron, MT

You received this email because you are a Genetic Lifehacks member.

[Unsubscribe](#)